IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently amended): An improved process for the production and purification of vinyl aromatic monomers which comprises:

a) feeding a stream consisting of an aromatic hydrocarbon together with a stream essentially consisting of a C_2-C_3 olefin, to an alkylation section;

b) alkylating the aromatic hydrocarbon by reaction with the C_2-C_3 olefin in the alkylation section;

~~b)~~ c) feeding the alkylation reaction product coming from the alkylation section to a first separation section;

~~c)~~ d) discharging from the first separation section[[,]]:

a first stream consisting of non-reacted aromatic hydrocarbon which is recycled to the alkylation section,

a second stream ~~essentially~~ consisting essentially of a mono-alkylated aromatic hydrocarbon,

a third stream ~~essentially~~ consisting essentially of dialkylated aromatic hydrocarbons, sent to a transalkylation section, and

a fourth stream ~~essentially~~ consisting essentially of a mixture of polyalkylated aromatic hydrocarbons;

~~d)~~ e) feeding the second stream of step ~~(c)~~ (d), consisting essentially of mono-alkylated aromatic hydrocarbon to a dehydrogenation section;

~~e)~~ f) dehydrogenating the mono-alkylated aromatic hydrocarbon to form a vinyl aromatic monomer;

g) feeding ~~the~~ a reaction product coming from the dehydrogenation section to a second purification/separation section, comprising at least one distillation column;

~~f)~~ h) feeding the fourth stream of step ~~(e)~~ (d) consisting essentially of a mixture of polyalkylated aromatic hydrocarbons to said at least one distillation column of step g);

~~g)~~ i) discharging from ~~the~~ a head of said at least one distillation column of step (g), a stream consisting of the vinyl aromatic monomer having a purity higher than 99.7% by weight.

Claim 2 (Currently amended): The process according to claim 1, wherein the aromatic hydrocarbon fed to the alkylation section ~~consists of~~ is refinery grade benzene, ~~refinery grade, whereas~~ and the ~~olefinic stream~~ C_2-C_3 olefin ~~consists of~~ is refinery grade ethylene or propylene~~, refinery grade~~.

Claim 3 (Currently amended): The process according to claim 2, wherein the ~~olefinic stream consists of~~ C_2-C_3 olefin is refinery grade ethylene.

Claim 4 (Currently amended): The process according to claim 1, ~~2 or 3,~~ wherein ~~the aromatic and olefinic streams are fed to the alkylation unit so as to have aromatic/olefin molar ratios ranging~~ a molar ratio of aromatic hydrocarbon to C_2-C_3 olefin is from 2 to 50.

Claim 5 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the alkylation reaction takes place in the presence of catalysts selected from the group consisting of aluminum trichloride, synthetic and natural porous crystalline solids

based on silicon and aluminum in which the silicon/aluminum atomic ratio ranges from 5/1 to 200/1 and synthetic zeolites of the ZSM group in which the silicon/aluminum atomic ratio ranges from 20/1 to 200/1.

Claim 6 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the alkylation reaction is carried out at a temperature ranging from 50 to 450°C.

Claim 7 (Currently amended): The process according to claim 3, wherein the alkylating is ~~catalyst consists of~~ catalyzed by aluminum trichloride and the temperature ranges from 100 to 200°C.

Claim 8 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the alkylation reaction is carried out at a pressure ranging from 0.3 to 6 MPa.

Claim 9 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the aromatic stream leaving the alkylation reactor is fed to a separation system consisting of a series of at least three distillation columns for the recovery of at least the mono-alkyl substituted aromatic compound, to be sent to the dehydrogenation unit, and a heavy bottom product ~~essentially~~ consisting essentially of polyalkylated products, tetralines and alkyl substituted diphenyl ethanes.

Claim 10 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the ~~catalytic~~ dehydrogenation reaction takes place in a fixed bed reactor, at a

temperature ranging from 500 to 700°C, at a pressure ranging from 0.02 to 0.15 MPa, in the presence of a catalyst based on iron oxide and potassium carbonate.

Claim 11 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the second purification/separation section comprises three or four distillation columns connected in series with respect to ~~the~~ a flow of vinyl aromatic monomer to be purified.

Claim 12 (Currently amended): The process according to ~~any of the previous claims~~ claim 1, wherein the ~~bottom~~ fourth stream consisting essentially of a mixture of polyalkylated aromatic hydrocarbons leaving the separation section of alkylated products is sent to any of the distillation columns, at any height thereof and, optionally, by premixing said heavy bottom product with any of the streams present in said second purification/separation section.

Claim 13 (Currently amended): The process according to claim 12, wherein the ~~bottom stream~~ fourth stream consisting essentially of a mixture of polyalkylated aromatic hydrocarbons leaving the separation section of alkylated products is sent ~~in the feeding~~ to the first distillation column of the second purification/separation section.

Claim 14 (New): The process according to claim 3, wherein a molar ratio of refinery grade benzene to refinery grade ethylene is from 2 to 50.

Claim 15 (New): The process according to claim 3, wherein the alkylation reaction takes place in the presence of catalysts selected from the group consisting of aluminum trichloride, synthetic and natural porous crystalline solids based on silicon and aluminum in

which the silicon/aluminum atomic ratio ranges from 5/1 to 200/1 and synthetic zeolites of the ZSM group in which the silicon/aluminum atomic ratio ranges from 20/1 to 200/1.

Claim 16 (New): The process according to claim 3, wherein the alkylation reaction is carried out at a temperature ranging from 50 to 450°C.

Claim 17 (New): The process according to Claim 3, wherein the dehydrogenation reaction takes place in a fixed bed reactor, at a temperature ranging from 500 to 700°C, at a pressure ranging from 0.02 to 0.15 MPa, in the presence of a catalyst based on iron oxide and potassium carbonate.

Claim 18 (New): The process according to claim 3, wherein the fourth stream consisting essentially of a mixture of polyalkylated aromatic hydrocarbons leaving the separation section of alkylated products is sent to any of the distillation columns, at any height thereof and, optionally, by premixing said heavy bottom product with any of the streams present in said second purification/separation section.

Claim 19 (New): The process according to claim 18, wherein the fourth stream consisting essentially of a mixture of polyalkylated aromatic hydrocarbons leaving the separation section of alkylated products is sent to the first distillation column of the second purification/separation section.